

09/866,145

08/29/06 Office Action Response &amp; Amendment

12/28/06

**Marked-up Set of Claims (According to 37 CFR 1.173(b)(2))**

1. (Four times amended) A method for dewatering thermophilic biological sludge[ that has been digested by a thermophilic digestion process], comprising:
  - a. adding [polymeric quaternary ammonium compounds, aluminum sulfate, ferric chloride and blends thereof as] a primary component[,] to the thermophilic biological sludge;  
said primary component comprising at least one of aluminum sulfate and ferric chloride; wherein  
said primary component may also comprise a polymeric quaternary ammonium compound; and
  - b. adding a cationic or anionic polyacrylamide to the thermophilic biological sludge[; such that any combinations of the primary component and of the polyacrylamides enhance dewatering of the sludge].
2. (Six times amended) The method for dewatering thermophilic biological sludge according to claim 1, wherein [the] said polymeric quaternary ammonium compound[s are from] is poly(di-allyl di-methyl ammonium chloride (DADMAC))[family].
3. (Six times amended) The method for dewatering thermophilic biological sludge according to claim 1, wherein [the] said polymeric quaternary ammonium compound[s are from] is poly(epichlorohydrin di-methyl amine (epi-DMA))[family].
4. (Four times amended) The method for dewatering thermophilic biological sludge according to claim 1, wherein [the polymeric quaternary ammonium compound, aluminum sulfate, ferric chloride and blends thereof are] said primary component is added directly to [the] said thermophilic biological sludge and, upon formation of microflocs [of the sludge] from [the polymeric quaternary ammonium compound, aluminum sulfate, ferric chloride and blends thereof] said primary component, said cationic polyacrylamide is added[ to form a floc that dewater the sludge].

#9/866,145

08/29/06 Office Action Response &amp; Amendment

12/28/06

5. (Four times amended) The method for dewatering thermophilic biological sludge according to claim 1, wherein the ratio[s] of [the]said polymeric quaternary ammonium compound[s] with respect to aluminum sulfate range from about 1:16 to about 1:2, by weight.
6. (Four times amended) The method for dewatering thermophilic biological sludge according to claim 1, wherein the ratio[s] of [the]said polymeric quaternary ammonium compound[s] with respect to ferric chloride range from about 1:8 to about 1:10, by weight.
7. (Four times amended) The method for dewatering thermophilic biological sludge according to claim 1, wherein the ratio[s] of [the]said polyacrylamide with respect to aluminum sulfate range from about 1:80 to about 1:8, by weight.
8. (Four times amended) The method for dewatering thermophilic biological sludge according to claim 1, wherein the ratio[s] of [the]said polyacrylamide with respect to ferric chloride range from about 1:70 to about 1:7, by weight.
9. (Three times amended) The method for dewatering thermophilic biological sludge according to claim 1, wherein the polymer concentration to solids ratio of total polymer dosage requirement in relationship to percentage of solids component of [the]said thermophilic biological sludge is between about 50 ppm:1 percent and about 300 ppm:1 percent.
10. (Three times amended) The method for dewatering thermophilic biological sludge according to claim 1, wherein [the polymeric quaternary ammonium compound, aluminum sulfate, ferric chloride and blends thereof, are]said primary component is added directly to [the]said thermophilic biological sludge in an amount sufficient to cause formation of a cationic overcharge within a developed micro floc system, [and an]then said anionic polyacrylamide is added[for final floc formation].
11. (Four times amended) The method for dewatering thermophilic biological sludge according to claim 10, wherein [the polymeric quaternary ammonium compound]said primary component and [the]said anionic polyacrylamide are in an approximate[ly] 1:8 to 20:1 ratio by

09/866,145

08/29/06 Office Action Response &amp; Amendment

12/28/06

weight[with the anionic polyacrylamide having a higher molecular weight than the polymeric quaternary ammonium compound does].

12. (Twice amended) The method for dewatering thermophilic biological sludge according to claim 10, wherein the polymer concentration to solids ratio of total polymer dosage requirement in relationship to percentage of solids component of [the]said thermophilic biological sludge is between approximately 50 ppm:1 percent and approximately 5000 ppm:1 percent.

13. (Three times amended) The method for dewatering thermophilic biological sludge according to claim 1, wherein [the]said thermophilic biological sludge is mixed with primary sludge.

14. Canceled

15. (Four times amended) The method for dewatering thermophilic biological sludge according to claim 1, wherein [the polymeric quaternary ammonium compounds, aluminum sulfate, ferric chloride and blends thereof, as well as the]said primary component and said polyacrylamide is [used]added in solution[, in emulsion or in dry] form.

16. (Amended) A sludge composition, comprising:

water;

solids comprising thermophiles;

aluminum sulfate; and

a cationic or an anionic polyacrylamide.

17. (Amended) A sludge composition, comprising:

water;

solids comprising thermophiles;

ferric chloride; and

a cationic or an anionic polyacrylamide.

09/866,145

08/29/06 Office Action Response &amp; Amendment

12/28/06

18. (Amended) A sludge composition, comprising:

water;

solids comprising thermophiles;

aluminum sulfate and ferric chloride; and

a cationic or an anionic polyacrylamide.

19. (Twice Amended) The sludge of claim 16, 17 or 18, further comprising a polymeric quaternary ammonium compound.

20. (Three Times Amended) The sludge of claim 19, wherein said polymeric quaternary ammonium compound is poly(DADMAC) and/or poly(epi-DMA).

21. (Amended) The sludge of claim 16, 17 or 18, wherein said polyacrylamide is cationic or anionic.

22 – 38. (Canceled)

39. The sludge of claim 16, 17 or 18, further comprising primary sludge.

09/866,145

08/29/06 Office Action Response &amp; Amendment

12/28/06

**Claim List – Status and Support of Current Amendment Changes**

<b>Claim</b>	<b>Status</b>	<b>Type</b>	<b>Support for Current Changes</b>
1	Pending	Method	"polyquaternary" changed to "polymeric quaternary" – technical correctness – specification support in col. 8 lines 35 – 46.
2	Pending	Method	"variety" has been removed; DADMAC changed to poly(DADAMC) – technical correctness - support is found in col. 5 lines 55 – 65; "the" changed to "said" – antecedent basis.
3	Pending	Method	"variety" has been removed. Epi-DMA has been changed to poly(epi-DMA) – technical correctness - support is found in col. 6 lines 9 – 14. "the" changed to "said" – antecedent basis.
4	Pending	Method	"of the sludge" removed – antecedent basis.
5	Pending	Method	"the" changed to "said" – antecedent basis.
6	Pending	Method	"the" changed to "said" – antecedent basis.
7	Pending	Method	"the" changed to "said" – antecedent basis.
8	Pending	Method	"the" changed to "said" – antecedent basis.
9	Pending	Method	There are no changes in this amendment.
10	Pending	Method	There are no changes in this amendment.
11	Pending	Method	There are no changes in this amendment.
12	Pending	Method	There are no changes in this amendment.
13	Pending	Method	There are no changes in this amendment.
14	Cancelled	N/A	N/A
15	Pending	Method	"used" replaced with "added" and "emulsion or in dry" removed – technical correctness – support in col. 9 line 12 through col. 12 line 12.
16	Pending	Composition	"polyacrylamide" is changed to "cationic or anionic polyacrylamide" – support is found in col. 8 lines 30 – 65.
17	Pending	Composition	"polyacrylamide" is changed to "cationic or anionic polyacrylamide" – support is found in col. 8 lines 30 – 65.
18	Pending	Composition	"polyacrylamide" is changed to "cationic or anionic polyacrylamide" – support is found in col. 8 lines 30 – 65.
19	Pending	Composition	"polyquaternary" changed to "polymeric quaternary" – technical correctness – specification support in col. 8 lines 35 – 46. "including" changed to "comprising" – specification support in the abstract, col. 8 lines 30 – 65, and in col. 11 lines 11 – 34.

09/866,145

08/29/06 Office Action Response &amp; Amendment

12/28/06

20	Pending	Composition	"variety" has been removed. DADMAC changed to poly(DADAMC) – technical correctness - support is found in col. 5 lines 55 – 65. Epi-DMA has been changed to poly(epi-DMA) – technical correctness-support is found in col. 6 lines 9–14. "the" changed to "said" – antecedent basis.
21	Pending	Composition	There are no changes in this amendment.
22-38	Cancelled	N/A	N/A
39	Pending	Composition	There are no changes in this amendment.